Applicants also thank the Examiner for the courtesies extended their representative at the April 10, 2003, personal interview. Applicants' separate record of the interview is incorporated into the following remarks.

I. Restriction Requirement

Claims 18-58 are withdrawn from consideration as subject to a Restriction Requirement. The claims of non-elected Group III are canceled. Applicants respectfully traverse the Restriction Requirement with respect to Groups I and II.

The Restriction Requirement is traversed because the claims of Groups I and II are drawn to sufficiently inter-related inventions to warrant examination thereof in a single application. Group I is drawn to compositions, particularly biocompatible adhesive compositions. Group II is drawn to methods of treating tissue using such compositions.

Where product and process claims are presented in the same application, Applicant may be called upon under 35 U.S.C. §121 to elect claims to either the product or process. MPEP §821.04. However, in the case of an elected product claim, rejoinder will be permitted when a product claim is found allowable and the withdrawn process claim depends from or otherwise includes all the limitations of an allowed product claim. Id. This policy should apply at least as to Groups I and II.

In the present application, the method claims of Group II include all of the limitations of the product of Group I. In particular, all of the limitations of the independent product claim 1 of Group I are incorporated into the method claims of Group II.

Since the method claims of Group II include the limitations of the product claims of Group I, the method claims must be rejoined with the product claims once the product claims are allowed. Thus, to streamline prosecution and avoid delay, the Restriction Requirement should be withdrawn to permit concurrent examination of all of the pending claims. Applicant respectfully requests reconsideration and withdrawal of the Restriction Requirement.

The Restriction Requirement is also traversed because the subject matter of Groups I and II is sufficiently related that a search of any one group would encompass a search of the subject matter of the remaining group. The prior art revealed by a search of the biocompatible adhesive compositions of Group I would overlap the prior art revealed by a search of the method of treating tissue using such compositions. Thus, although the classifications may be different, the subject matter is sufficiently overlapping that concurrent search of all of the claims does not create a serious burden.

If the search and examination of an entire application can be made without serious burden, the Examiner must examine it on the merits, even though it includes claims to distinct or independent claims. MPEP §803. Applicant respectfully submits that there would be no serious burden on the Patent Office to examine all of the present claims because the subject matter of Groups I and II is sufficiently related that a search of any one group would encompass the search of the subject matter of the remaining groups. Thus, the Restriction Requirement is improper and should be withdrawn.

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the Restriction Requirement.

II. Rejections Over Akimova or EP 252

Claims 1, 5-6, 8-11, 14, 17 and 68 are rejected under 35 U.S.C. §102(b), or alternatively under 35 U.S.C. §103(a), over Akimova or EP 252. The Office Action argues that Akimova or EP 252 discloses, or at least would have rendered obvious, all of the limitations of the claimed invention. Applicants respectfully traverse this rejection.

A. Examiner Interview

At the Examiner Interview, the Examiner indicated that "proposed claims would overcome Akimova." See comments in the Interview Summary. The proposed claim amendment has not been incorporated into claim 1, as proposed at the Examiner Interview, but instead has been presented as new claim 71, which should be patentable over the cited

references. Applicants instead traverse the rejection herein based on the limitations of the original claim.

B. The Claimed Invention

The claimed invention is generally directed to biocompatible adhesive compositions, and methods of treating tissue using such compositions. In particular, claim 1 is directed to a biocompatible adhesive composition, comprising: a first monomer species; and a second monomer species different from said first monomer species, wherein at least said first monomer species is absorbable, and an absorption rate of said first monomer species is different from an absorption rate of said second monomer species. Such a biocompatible adhesive composition is not disclosed in, and would not have been obvious over, the disclosures of the cited Akimova references.

C. Akimova Does Not Render the Claimed Invention Unpatentable

The claimed invention is thus a biocompatible adhesive composition, or a film formed therefrom. As such, the composition within the scope of the instant claims must be biocompatible, i.e., suited for and meeting the requirements of a medical device, used for either long or short term implants or for non-implantable applications, such that when implanted or applied in an intended location, the material serves the intended function for the required amount of time without causing an unacceptable response. See specification at page 4, lines 29-34. The composition must also be an adhesive, i.e., capable of bonding substances together by surface attachment. Akimova at least fails to meet the requirement of being an adhesive.

Akimova is generally directed to a biocompatible material for treatment of tissular or organic defects that is composed of a graft copolymer of alpha-cyanacrylate and polyacrylic acid having a molecular weight of 200,000 to 600,000, obtained by interaction of alpha-cyanacrylate with polyacrylic acid in the presence of a cross-linking agent. Akimova at Abstract. Akimova nowhere discloses, or even suggests, that the composition is or could be used as an adhesive.

In contrast to the claimed invention, which is a biocompatible adhesive composition, Akimova is simply directed to a composition that is used to form solid films, sheets or granules, which are subsequently used as a biocompatible solid material. For example, Akimova describes at col. 3, lines 45-64 and col. 4, lines 41-42, that the described composition is first formed into a solid film or sheet, and then that sheet is simply placed over a surface of the organ to be treated, followed by the incision being stitched up in a conventional manner. Akimova does not disclose, teach or suggest that the composition is used as an adhesive composition, or that the resultant film or sheet has any adhesive properties.

Similarly, the Examples of Akimova fail to disclose adhesive compositions, or resultant products having adhesive properties. Examples 1 and 2 in Akimova describe mixing the separate components together and forming a film or sheet, which can be subsequently used as described above. Examples 4 and 6 are similar to Examples 1 and 2. Example 3 describes mixing the separate components together and forming granules, which are likewise not described as having any adhesive properties. Finally, Example 5 is similar to Examples 1, 2, 4 and 6, except that the resultant product is described as strings, rather than as a film.

Accordingly, Akimova fails to disclose, teach or suggest at least the instant claim limitation that the composition is a biocompatible "adhesive" composition. In the absence of any such teachings, Akimova cannot anticipate, and cannot have rendered obvious, the claimed invention. Thus, the claims are patentable over the cited Akimova references. Reconsideration and withdrawal of the rejection are respectfully requested.

D. New Claims 69-72 Are Patentable Over Akimova

New claims 69-70 are patentable over Akimova. New claim 69 specifies that the adhesive composition is a polymerizable adhesive composition, and claim 70 specifies that the adhesive composition is in a monomeric form. Neither of these claims are taught or suggested by Akimova. Instead, Akimova teaches that the product is a solid material, in

sheet, granule or string form, without any ascribed adhesive properties. Akimova does not teach or suggest that the product is either a polymerizable adhesive composition or is in a monomeric form.

New claim 71 is patentable over Akimova, for the reasons indicated at the Examiner Interview. New claim 71 specifies that the first monomer species and the second monomer species are present in an amount of at least 65 percent by weight of the biocompatible adhesive composition. Akimova instead teaches that the cyanoacrylate monomers are present in the composition in an amount that cannot exceed 34 percent by weight, otherwise the composition does not serve its intended purposes. See Akimova at col. 3, lines 4-17.

New claim 72 is patentable over Akimova. New claim 72 specifies that the first monomer species is selected from the group consisting of an alkyl ester cyanoacrylate, isopropoxy ethyl cyanoacrylate, and methoxy butyl cyanoacrylate. New claim 72 thus incorporates the alternative limitations of non-rejected claims 2 and 7.

III. Rejections Over Clark

A. Clark in view of Kronenthal, Collins, EP 623 and Harwood

Claims 1-4, 8-17 and 59-68 are rejected under 35 U.S.C. §103(a) over Clark in view of Kronenthal, Collins, EP 623 and Harwood. The Office Action argues that the claimed invention would have been obvious over the cited references. Applicants respectfully traverse this rejection.

1. The Claimed Invention

The claimed invention is generally directed to biocompatible adhesive compositions, and methods of treating tissue using such compositions. In particular, claim 1 is directed to a biocompatible adhesive composition, comprising: a first monomer species; and a second monomer species different from said first monomer species, wherein at least said first monomer species is absorbable, and an absorption rate of said first monomer species is different from an absorption rate of said second monomer species. Independent claim 59 is

directed to a biocompatible adhesive composition, comprising: at least one alkyl ester cyanoacrylate monomer; a second monomer species having an absorption rate different from an absorption rate of said at least one alkyl ester cyanoacrylate monomer; and a polymerization initiator or accelerator, wherein said polymerization initiator or accelerator is a quaternary amine.

Thus, as pending, each of independent claims 1 and 59 specifically requires the presence of two, different, monomer species, where at least one of the monomer species is absorbable. Such compositions are nowhere taught or suggested in Clark.

2. Clark Does Not Teach or Suggest the Claimed Invention

Clark is directed to an applicator tip for dispensing a polymerizable and/or cross-linkable material which is porous, absorbent or adsorbent and includes a polymerization or cross-linking initiator. The initiator initiates polymerization or cross-linking when the polymerizable and/or cross-linkable material is dispensed through the applicator tip. The polymerizable and/or cross-linkable material may be applied to a variety of substrates. See Clark at Abstract.

The Office Action correctly points out that Clark discloses the use of various cyanoacrylate monomers. However, Clark nowhere specifically discloses, and entirely fails to teach or suggest, the use of a first absorbable monomer species, as specifically required by the claimed invention, in combination with a second, different monomer species that has an absorption rate that is different from the first monomer species. Clark specifically discloses a number of suitable monomers, including specific suitable cyanoacrylate monomers, but fails to disclose the specific absorbable first monomer species as claimed. Still further, Clark nowhere teaches or suggests that any such specifically selected absorbable first monomer should specifically be used in combination with a second, different monomer species, as claimed. Clark entirely fails to disclose the combined use of the two different monomer species, as claimed.

With respect to the monomers, Clark discloses that the monomers may suitably be selected from 1,1-disubstituted monomers of the formula CHR=CXY. See col. 4, lines 35-44. Clark goes on to disclose that preferred and "especially advantageous" monomers are the cyanoacrylates, including those of formula (II). See col. 4, line 52 to col. 5, line 12. At most, the disclosure of Clark only broadly encompasses the alkyl ester cyanoacrylates of the dependent claims, if the substituents R^3, R^7 and R^8 are properly selected. Clark also discloses preferred monomers to include alkyl alpha-cyanoacrylates, such as 2-octyl cyanoacrylate. Col. 5, lines 33-39.

However, Clark does not disclose, teach or suggest specific examples of absorbable monomers, such as the claimed first monomer species. Nor does Clark disclose, teach or suggest the combined use of two or more monomer species, having different absorption rates, in any combination, much less in the combination required by the present independent claims. Clark does not teach or suggest any preference for one monomer over the rest, except perhaps for the use of alkyl alpha cyanoacrylates, and by no means discloses or suggests any preference for a first monomer species that is absorbable, in combination with a second monomer species.

Although the disclosure of Clark may broadly encompass the various specific monomer components that are disclosed and claimed as being within the scope of the claimed invention individually, Clark would not have rendered obvious the claimed invention. In particular, Clark does not teach or suggest any preference for one monomer over the rest, does not teach or suggest the specific absorbable first monomer species, and does not teach or suggest the use of two different monomer species having different absorption rates, as claimed. In the present case, Clark fails to teach or suggest specifically selecting any monomer, much less a first monomer species that is absorbable, and a second, different monomer having a different absorption rate, as claimed. Clark only broadly encompasses the use of cyanoacrylate

monomers, but only individually and not in combination. In the absence of any such teachings, the reference cannot have rendered obvious the claimed invention.

3. The Secondary References Fail to Overcome Clark's Deficiencies

Furthermore, none of the secondary references, alone or in combination, overcome the above-described deficiencies of Clark, whether alone or in combination.

Kronenthal is cited for its disclosure of carbalkoxyalkyl 2-cyanoacrylates, which are disclosed to be readily assimilated by tissues and exhibit a relatively low degree of inflammatory tissue response. However, Kronenthal fails to disclose, teach or suggest that one of ordinary skill in the art should select two different monomer species, each having different absorption rates, for use in a biocompatible adhesive composition, as claimed. At most, one of ordinary skill in the art might have been motivated to modify Clark by using only the carbalkoxyalkyl 2-cyanoacrylate of Kronenthal. However, such a modification still would not have yielded the claimed invention.

Collins is cited for its disclosure that octyl 2-cyanoacrylate is a more effective tissue adhesive. Collins is further cited for its alleged teaching that a composition is desired having the low toxicity and fast polymerization rate of the higher homolog cyanoacrylates, and the biodegradability of methyl cyanoacrylate. However, Collins likewise fails to disclose, teach or suggest that one of ordinary skill in the art should select two different monomer species, each having different absorption rates, for use in a biocompatible adhesive composition, as claimed. In fact, when considered in combination with Clark and Kronenthal, Clark and Collins appear to be directly contradictory to Kronenthal. Each of Clark and Collins express a distinct preference for alkyl alpha-cyanoacrylates, whereas Kronenthal expresses a preference for carbalkoxyalkyl 2-cyanoacrylate. Accordingly, one of ordinary skill in the art would at best have been motivated to use either the monomers of Clark and/or Collins, or the monomers of Kronenthal, but not a combination of them. Any combination of the references thus would still not have provided the claimed invention.

EP 623 is cited for its disclosure of stabilizing agents. Harwood is not explained in the Office Action, but is believed to be cited for its disclosure of various initiators for polymerizable monomers. However, neither of these references overcomes the above-described deficiencies of the primary references.

4. Conclusion

Accordingly, considering the cited references in combination, one of ordinary skill in the art would not have been motivated to practice the claimed invention. The cited references fail to teach or suggest selecting a plurality of different monomer species, having different absorption rates, as claimed.

The claimed invention is thus patentable over the cited references. Reconsideration and withdrawal of the rejection are respectfully requested.

B. Clark in view of Banitt, Collins, EP 623 and Harwood

Claims 1, 5-11, 14, 17 and 68 are rejected under 35 U.S.C. §103(a) over Clark in view of Banitt, Collins, EP 623 and Harwood. The Office Action argues that the claimed invention would have been obvious over the cited references. Applicants respectfully traverse this rejection.

The claimed invention of independent claim is described above. In short, independent claim specifically requires the presence of two, different, monomer species, where at least one of the monomer species is absorbable, and an absorption rate of said first monomer species is different from an absorption rate of said second monomer species. Such compositions are nowhere taught or suggested in Clark.

1. Clark Does Not Teach or Suggest the Claimed Invention

The disclosure of Clark is discussed in detail above. As described above, Clark fails to disclose, teach or suggest the use of a first, absorbable monomer species in combination with a different, second monomer species, as claimed. Although Clark broadly discloses various

monomer species, Clark does not disclose the use of such monomer species in combination, where the different monomer species have different absorption rates.

Clark does not disclose, teach or suggest the combined use of two or more monomer species, having different absorption rates, in any combination, much less in the combination required by the present independent claims. Clark does not teach or suggest any preference for one monomer over the rest, except perhaps for the use of alkyl alpha cyanoacrylates, and by no means discloses or suggests any preference for the specifically claimed combination of two different monomer species having different absorption rates. Clark thus fails to teach or suggest the claimed invention. In the absence of any such teachings, the reference cannot have rendered obvious the claimed invention.

2. The Secondary References Fail to Overcome Clark's Deficiencies

Furthermore, none of the secondary references, alone or in combination, overcome the above-described deficiencies of Clark, whether alone or in combination.

Banitt is cited for its disclosure of alkoxyalkyl 2-cyanoacrylates, which are disclosed to be biodegradable and of minimal toxicity. However, Banitt fails to disclose, teach or suggest that one of ordinary skill in the art should select two different monomer species, each having different absorption rates, for use in a biocompatible adhesive composition, as claimed. At most, one of ordinary skill in the art might have been motivated to modify Clark by using only the alkoxyalkyl 2-cyanoacrylate of Banitt. However, such a modification still would not have yielded the claimed invention.

Collins is cited for its disclosure that octyl 2-cyanoacrylate is a more effective tissue adhesive. Collins is further cited for its alleged teaching that a composition is desired having the low toxicity and fast polymerization rate of the higher homolog cyanoacrylates, and the biodegradability of methyl cyanoacrylate. However, Collins likewise fails to disclose, teach or suggest that one of ordinary skill in the art should select two different monomer species, each having different absorption rates, for use in a biocompatible adhesive composition, as claimed.

In fact, when considered in combination with Clark and Banitt, Clark and Collins appear to be directly contradictory to Banitt. Each of Clark and Collins express a distinct preference for alkyl alpha-cyanoacrylates, whereas Banitt expresses a preference for alkoxyalkyl 2-cyanoacrylate. Accordingly, one of ordinary skill in the art would at best have been motivated to use either the monomers of Clark and/or Collins, or the monomers of Banitt, but not a combination of them. Any combination of the references thus would still not have provided the claimed invention.

EP 623 is cited for its disclosure of stabilizing agents. Harwood is not explained in the Office Action, but is believed to be cited for its disclosure of various initiators for polymerizable monomers. However, neither of these references overcomes the above-described deficiencies of the primary references.

3. Conclusion

Accordingly, considering the cited references in combination, one of ordinary skill in the art would not have been motivated to practice the claimed invention. The cited references fail to teach or suggest selecting a plurality of different monomer species, having different absorption rates, where the first monomer species is an alkyl ester cyanoacrylate or a specified alkyl ether cyanoacrylate.

The claimed invention is thus patentable over the cited references. Reconsideration and withdrawal of the rejection are respectfully requested.

IV. Conclusion

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

William P. Berridge
Registration No. 30,024

Joel S. Armstrong
Registration No. 36,430

WPB:JSA

Attachments:
Appendix
Form PTO-1449

Date: April 14, 2003

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461

APPENDIX

Changes to Claims:

Claims 28-45 are canceled.

Claims 69-72 are added.

The following are marked-up versions of the amended claim(s):

68. (Amended) A polymerized film formed ~~from the polymerization of a first monomer species and a second monomer species different from said first monomer species, wherein at least said first monomer species is absorbable and an absorption rate of said first monomer species is different from an absorption rate of said second monomer species~~ by curing the composition of claim 1.